

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 98-238

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF EL DORADO
UNION MINE DISPOSAL FACILITY
CLASS II LANDFILL, CLASS III LANDFILL,
CLASS II SURFACE IMPOUNDMENT
SEPTAGE/LEACHATE TREATMENT FACILITY
EL DORADO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The County of El Dorado owns and operates the Union Mine Disposal Facility. The County of El Dorado is hereafter referred to as Discharger.
2. The Union Mine Disposal Facility is three miles south of the town of El Dorado in El Dorado County, in the northwest quarter of Section 12, T9N, R10 E, MDB&M (as shown on Attachment A). The total area of the facility is 359.21 acres, consisting of Assessor's Parcel Numbers 92-011-17, -20, -21, and -28, and several U.S. Bureau of Land Management parcels (87.77 acres).
3. The facility includes an unlined Class III landfill, a Class II landfill, a Class II surface impoundment, a landfill gas collection and flare system, a septage and leachate treatment facility, and wastewater spray fields.
4. The Discharger has ceased discharge to the Class III landfill. Limited amounts of solid wastes are discharged to the Class II landfill. Most of the County's solid wastes are exported out of the county. The Class II surface impoundment accepts leachate from the landfill. The septage and leachate treatment facility accepts liquid waste for treatment with the disposal of treated liquid wastes to spray fields or to a connection to the El Dorado Irrigation District.
5. The Discharger filed a Report of Waste Discharge on 7 October 1998 requesting a revision of Waste Discharge Requirements (WDRs) to approve an engineered alternative to the prescriptive requirement for the low permeability layer of the landfill liner and cover systems. The engineered alternative consists of a geosynthetic clay liner (GCL).

SITE DESCRIPTION

6. An underground gold mine, which operated from the 1860s through the 1940s, underlies part of the facility. Three mine tunnels, one mine adit, one stope and one mine shaft are in the vicinity of the Class II and III landfill areas.
7. The disposal facility is in an area of steep relief, surrounded by ridges with elevations ranging from 1,180 to 1,475 feet mean sea level (MSL). Land within 1,000 feet of the facility includes 10- and 20-acre residential lots, 20-acre agricultural parcels, and is adjacent to Bureau of Land Management land.
8. The landfill is underlain by weathered to fresh, thin-bedded slates and phyllite. No Holocene faults are within 200 feet of the landfill. The potentially active Melones Fault Zone is 0.6 miles east of the facility. The Melones Fault Zone is part of the Foothills Fault system which has an estimated maximum credible earthquake (MCE) of 6.5 Richter Magnitude and a maximum probable earthquake of 5.5 Richter Magnitude.
9. Groundwater beneath the facility occurs in fractured bedrock, valley alluvium, and the underground mine workings. Groundwater flow direction is towards the east and southeast.
10. The groundwater monitoring network consists of three upgradient wells and six downgradient wells (see Attachment B).
11. The beneficial uses of the groundwater are domestic and municipal supply, agricultural supply, and industrial supply.
12. The facility receives an average 35 inches of precipitation per year as measured at the Placerville Sub-station. The 100-year, 24-hour precipitation event intensity is 6.1 inches per hour. The 1,000-year 24-hour precipitation event intensity is 7.6 inches. The estimated annual evaporation is 28 inches. Maximum evaporation is expected in July with an average value of 8.2 inches. Minimum evaporation is expected in January with an average value of 1.1 inches.
13. Surface drainage is to Martinez Creek, a perennial stream 500 feet east of the facility. Martinez Creek is tributary to the North Fork Cosumnes River, which is tributary to the Cosumnes River, thence to the Sacramento-San Joaquin Delta.
14. The beneficial uses of these surface waters are domestic supply, irrigation, recreation, aesthetic enjoyment, and preservation and enhancement of fish, wildlife and other aquatic resources.

WASTES AND THEIR CLASSIFICATION

15. The Discharger proposes to accept municipal solid waste and designated waste for disposal in the Class II landfill. Designated wastes include the following waste types which do not contain wastes at or above hazardous concentrations: ashes, low-level petroleum contaminated soils, and treated wood waste.
16. The Discharger proposes to discharge wastes to the Class II landfill containing greater than one percent (>1%) friable asbestos, which is a hazardous material. However, because these wastes do not pose a threat to groundwater quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has WDRs that specifically permit the discharge provided that the wastes are handled and disposed of in accordance with other applicable state and federal statutes and regulations.
17. Leachate generated by the landfill is a designated waste. Leachate is discharged to the Class II surface impoundment.
18. Liquid wastes accepted for discharge to the leachate and septage treatment plant include sewage sludge, water treatment sludge, septic tank pumpings, holding tank pumpings, storm drain cleanings, grease trap pumpings, and grit and grease. The treatment and disposal of these wastes are not regulated or classified under Title 27.

FACILITY DESIGN AND OPERATIONS

Class III Landfill

19. The existing 34.5-acre Class III landfill unit is unlined and constructed over native materials. The Class III landfill unit was sited above-grade over some of the mine's interconnected stopes, shafts and tunnels. This unit no longer accepts wastes and the Discharger has commenced closure activities on the unit.
20. The Discharger has installed an interim cover on the southern half (14.8 acres) of the Class III landfill. The interim cover consists of one-foot of imported compacted clay with a hydraulic conductivity no greater than 1×10^{-7} cm/sec.
21. In the spring of 1998, the Discharger installed a prescriptive final cover on 5.1 acres of the northern and south-eastern sideslopes of the Class III unit. This cover consisted of a two-foot thick foundation layer, a one-foot thick low permeability layer, and a one-foot thick vegetative layer.
22. In the fall of 1998, the Discharger installed an engineered alternative final cover on 14.6 acres of the top and eastern sideslopes of the Class III unit prior to Board approval. The engineered alternative final cover uses a GCL in place of the prescriptive one-foot thick low permeability barrier layer. The cover consists of a two-foot thick foundation layer, the

GCL, and a one-foot thick vegetative layer. Title 27 Section 20080(b) (engineered alternatives to prescriptive standards) requires the submittal of a demonstration that the prescriptive standard is not feasible because it is unreasonably and unnecessarily burdensome or impractical. The engineered alternative must afford equivalent protection against water quality impairment. The Board has routinely approved the substitution of geosynthetic clay liners (GCL) for the low permeability layer of a landfill liner or cover system. The Discharger was not required to repeat the demonstration because there are no significant differences in the characteristics of already approved GCLs and the liners or covers proposed for the Union Mine Landfill Facility. The issuance of these WDRs constitutes approval of the GCL engineered alternative. However, before the final cover is approved the Discharger must demonstrate to Board staff that closure construction meets the requirements of Title 27 and these WDRs.

23. A toe drain consisting of a gravel filled trench runs the length of the junction between the Class III and Class II landfills. The purpose of the drain is to collect leachate generated from below the clay liner at the toe of the Class III landfill and transfer the leachate to the Class II surface impoundment.

Class II Landfill

24. The 21.7-acre Class II landfill has 7.1-acres lined with a composite liner system consisting of a geomembrane underlain by a two-foot thick low permeability layer on the base and a geosynthetic clay liner on the sideslopes. The unit also has a blanket gravel leachate collection system. The Board approved the use of a GCL for the Class II landfill with Order No. 94-149.
25. The Discharger constructed a groundwater underdrain and a compacted fill layer to maintain a 5-foot minimum separation between groundwater and wastes at the side slopes of the landfill. The underdrain consists of one foot of gravel on the base and sideslopes, toe drains, and piping.

Septage/Leachate Treatment Facility and Spray Fields

26. The Discharger operates a treatment facility designed to treat leachate generated from the landfill and off-site septage hauled to the facility. The treatment system for leachate includes filtration, disinfection using hypochlorite, and aerobic digesters for sludge treatment. The treatment system for septage includes aerobic digestion, aerated holding tank for decant from aerobic digesters, sludge dewatering using a centrifuge, and disinfection using hypochlorite.
27. The Discharger disposes of the treated leachate/septage wastewater by either on-site irrigation, injection into the landfill gas flare, or transfer to the El Dorado Irrigation District (EID) waste water treatment facility.

28. On-site irrigation and landfill gas flare injection are the primary disposal options. The Discharger has been irrigating three acres on a rotating basis throughout the year. The proposed wastewater disposal application rates are 1.4 inches/month annual average, 1.1 inches/month in winter with storage in a two million gallon aerated storage tank, and 1.9 inches/month without storage. The proposed landfill gas flare injection rate of treated wastewater is 2-3 gallons/minute.

Class II Surface Impoundment

29. The Class II surface impoundment is used to contain up to two million gallons of landfill leachate. The liner design components are from top to bottom: 60-mil HDPE geomembrane, two foot clay liner with 1×10^{-7} cm/sec hydraulic conductivity, two gravel filled LCRS trenches running the length of the surface impoundment, and two vacuum lysimeters.

OTHER CONSIDERATIONS

30. This Order implements:
- a. The Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition;
 - b. The prescriptive standards and performance goals of Title 27, CCR, Division 2, Subdivision 1, effective 18 July 1997, and subsequent revisions;
 - c. The prescriptive standards and performance criteria of Part 258, Title 40 of the Code of Federal Regulations, Subtitle D of the Resource Conservation and Recovery Act; and
 - d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.
31. The facility is not within a 100-year floodplain as identified by the Federal Emergency Management Agency (FEMA).

PROCEDURAL REQUIREMENTS

32. The action to revise WDRs for these waste management facilities is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.
33. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

34. The Board has notified the Discharger and interested agencies and persons of its intention to revise the waste discharge requirements for this facility.
35. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 92-149 is rescinded and the County of El Dorado and its agents, assigns and successors, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of wastes classified as 'hazardous' as defined by Title 27 CCR, is prohibited.
2. The discharge of waste to the Class III landfill unit is prohibited.
3. The discharge to landfill units of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage or water treatment sludge as provided in Title 27, is prohibited.
4. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to landfill units is prohibited.
5. Discharge outside specified waste management units is prohibited.
6. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited.
7. The by-pass or overflow of untreated or partially treated waste is prohibited.
8. The application of effluent on areas which do not have vegetative cover or other erosion control measures in effect is prohibited.
9. The discharge of wastewater to spray fields prior to 24 hours before or 24 hours after a rainfall event is prohibited.
10. No waste management units shall be located in the 100 year floodplain.
11. The unauthorized discharge of liquid waste from the Class II surface impoundment is prohibited.
12. The discharge of waste within 50 feet of surface waters is prohibited.

13. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat, or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
 - a. require a higher level of containment than provided by the unit;
 - b. are restricted 'hazardous wastes'; or
 - c. impair the integrity of containment structures

is prohibited.

B. WASTE DISCHARGE SPECIFICATIONS

1. The waste discharges shall remain within the designated disposal areas at all times.
2. The 30-day average daily dry weather discharge flow from the septage/leachate treatment facility shall not exceed 30,000 gallons per day, unless expansions to the treatment facility and irrigation areas are first approved by the Board.
3. Runoff from irrigated areas in the spray fields shall be contained within the spray field areas by berms or other approved means.
4. The discharge from the septage/leachate treatment facility shall not have a pH less than 6.5 nor greater than 8.5.
5. The discharge of treated wastewater to irrigated areas shall not occur until all storm water runoff from the irrigated areas has ceased.
6. The discharge of an effluent from the Leachate/Septage Treatment Facility to irrigation facilities in excess of the following limits is prohibited:

<u>Constituents</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Monthly Median</u>	<u>Daily Maximum</u>
BOD ¹	mg/l	40	--	80
Settleable Matter	ml/l/hr	0.2	--	0.5
Total Coliform	MPN/100ml	--	23	230

5-day, 20°C biochemical oxygen demand

7. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Title 27 and these requirements.

8. Reclaimed wastewater shall meet the health based requirements and criteria contained in Title 22, California Code of Regulations.
9. The dissolved oxygen content of the Class II surface impoundment and the sedimentation holding basins shall not be less than 1.0 mg/l for 16 hours in any 24-hour period.
10. A two foot freeboard shall be maintained in the Class II surface impoundment at all times.
11. There shall be no standing water in the irrigated waste disposal area 24 hours after wastewater is applied.
12. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
13. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
14. Dewatered sewage or water treatment sludge may be accepted for disposal in the Class II landfill if the sludge contains at least 20 percent solids (primary sludge) or 15 percent solids (secondary sludge), is mixed with refuse at a minimum solids-to-liquid ratio of 5:1 by weight, and shall not exceed the initial moisture holding capacity of the solid waste.
15. The Discharger shall not accept liquid wastes from non-domestic sources until the Discharger develops a program to prevent treatment plant upset or by-pass from non-domestic sources. The objectives of the program shall be: (1) to identify non-domestic sources of discharge, (2) to identify constituents which could cause upset or bypass, (3) to develop discharge limitations for non-domestic users, and (4) to develop a non-domestic monitoring program to enforce limitations.
16. Any proposed change in sludge use or disposal practice shall be reported to the Executive Officer at least 90 days in advance of the change.

GENERAL WMU CONSTRUCTION

17. Municipal solid waste shall be discharged to an area equipped with a containment system which meets the requirements for both liners, covers, and leachate collection systems specified below.
18. All new landfill unit liners shall be a composite liner consisting of a 60-mil thick high density polyethylene flexible membrane and either at least two feet thick of soil that has an hydraulic conductivity of no more than 1×10^{-7} cm/sec or a geosynthetic clay liner (GCL).
19. New landfill units and lateral expansions shall not be in wetlands unless the Discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).
20. All liner systems shall include a leachate collection and removal system which shall convey to an appropriately lined sump or other appropriately lined collection area all leachate which reaches the liner. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
21. Leachate generation by a landfill unit LCRS shall not exceed 85% of the design capacity of the sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the minimum needed for pump operations then the Discharger shall immediately cease the discharge of sludges and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a time table for corrective action necessary to reduce leachate production.
22. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with Title 27 and this Order and approved by Board staff prior to operation. **Ninety days** prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to Board staff for review and approval and shall include, but not be limited to, the engineered design plans, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Approval of the final design report shall be obtained from Board staff prior to the construction of the landfill liner or cover. A final construction report shall be submitted for approval by Board staff after each phase of construction and prior to the discharge of waste into the constructed phase. For cover construction, the final construction report shall be submitted within **ninety days** of completion of construction for approval by Board staff. The final construction report shall include, but not be limited to, as-built plans, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Standard Provisions and Reporting Requirements.

23. All expansion unit containment systems shall include a leachate collection and removal system (LCRS) which shall convey to an appropriately lined sump or other appropriately lined collection area all leachate which reaches the liner. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
24. The hydraulic conductivity of the low permeability barrier layer for the Class III landfill covers shall be 1×10^{-6} cm/sec or less. Class II landfill clay liners shall have a hydraulic conductivity of 1×10^{-7} cm/sec or less and covers shall have a hydraulic conductivity of 1×10^{-6} cm/sec or less. The minimum relative compaction shall be 90 percent. GCL liners shall have a maximum permeability of 5×10^{-9} cm/sec. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by an appropriate number of field tests in accordance with the Standard Provisions and Reporting Requirements.
25. LCRS shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be maintained as low as feasible and no greater than the minimum needed for safe pump operation.
26. All unlined landfill areas that do not have an approved final cover shall have an interim cover constructed of soil with a permeability of 1×10^{-5} cm/sec or less and a minimum relative compaction greater than 90 percent, or a geosynthetic cover to preclude rainwater percolation to the waste, consistent with a Board staff approved construction quality assurance plan. All lined landfill areas that do not receive wastes for 180 days or more shall have an interim cover designed and constructed to minimize percolation of liquids through wastes.

Supervision and Certification of Construction

27. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards and performance goals of Title 27 prior to waste discharge.

LANDFILL CLOSURE SPECIFICATIONS

28. At closure, the Class III landfill unit shall receive a final cover consisting, at a minimum, of a two-foot thick foundation layer using materials of appropriate engineering properties and which may contain waste materials, overlain by either a one-

foot thick clay cover or a geosynthetic clay liner (GCL), and finally by a one-foot thick vegetative soil layer.

29. At closure, the Class II landfill unit shall receive a final cover consisting, at a minimum, of a two-foot thick foundation layer which may contain waste materials, overlain by either a one-foot thick clay cover or a GCL, overlain by a geomembrane, overlain by a drainage net, and finally by a one-foot thick vegetative soil layer. The Class II unit final cover shall be at least as protective as the bottom liner.
30. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.
31. Closed landfill units shall be graded to at least a three percent grade and maintained to prevent ponding.

PROTECTION FROM STORM EVENTS

32. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24 hour precipitation conditions for Class II WMUs and 100-year, 24-hour precipitation conditions for Class III WMUs.
33. Waste management units shall be designed, constructed, and operated in compliance with precipitation and flood conditions contained in the Standard Provisions and Reporting Requirements.
34. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes.

C. RECEIVING WATER LIMITATIONS

Water Quality Protection Standards

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the Concentration Limits established pursuant to Monitoring and Reporting Program No. 98-238, which is attached to and made part of this Order.

D. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, and which are hereby incorporated into this Order. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. The Discharger shall submit to the Board all documentation (i.e. reports, plans, designs) required by this Order for review and approval by Board staff before discharging waste to containment areas or WMUs constructed after the effective date of this Order.
3. The Discharger shall comply with all applicable provisions of Title 27 and 40 CFR Part 258 that are not specifically referred to in this Order.
4. A report on the Construction Quality Control for the interim cover material shall be submitted to the Board by **1 December** of each year.
5. The Discharger shall remove and relocate any wastes discharged at this facility in violation of this Order.
6. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to the facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by Board staff. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.
8. The Discharger shall provide proof to the Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
 - a. The parcel has been used as a municipal solid waste landfill (MSWLF);
 - b. Land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and

- c. In the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.
9. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor groundwater, leachate from the landfill units, the vadose zone, and surface waters per Monitoring and Reporting Program No. 98-238 throughout the active life of the waste management units and post-closure maintenance period.
10. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all WMUs will not threaten water quality.

E. FINANCIAL ASSURANCE

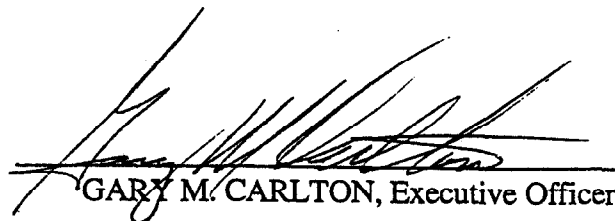
The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other means to ensure adequate closure and post-closure maintenance of each waste management unit.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. 98-238 and in the Standard Provisions and Reporting Requirements which are attached hereto and made part of this Order.
2. The Discharger shall submit a closure and post-closure maintenance plan (or submit suitable modifications to a pre-existing plan), that complies with 40 CFR 258.60 and 258.61, with Title 27, and with Title 14 of the CCR.
3. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the WMUs. The Discharger shall also notify the Board of a material change in the character, location or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.
4. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

5. The Discharger shall submit a status report regarding the financial assurances for corrective action and closure every five years after the date of adoption of these requirements that either validates the ongoing viability of the financial instrument or proposes and substantiates any needed changes.

I, GARY M. CARLTON, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 December 1998.



GARY M. CARLTON, Executive Officer

Attachments

AMENDED 11 December 1998

PWM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 98-238

COUNTY OF EL DORADO

UNION MINE DISPOSAL FACILITY

CLASS II LANDFILL, CLASS III LANDFILL

CLASS II SURFACE IMPOUNDMENT

SEPTAGE/LEACHATE TREATMENT FACILITY

EL DORADO COUNTY

The Discharger shall maintain water quality monitoring systems that are appropriate for detection monitoring and evaluation monitoring and that comply with the provisions of Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 3.

Waste Discharge Requirements Order No. 98-238 and Standard Provisions and Reporting Requirements require compliance with this Monitoring and Reporting Program. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in non-compliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The Discharger shall summarize the data to clearly illustrate compliance with waste discharge requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

The Discharger shall report field and laboratory test results in semi-annual monitoring reports. The Discharger shall submit the semi-annual monitoring reports to the Board by **31 January** (Fall report) and **31 July** (Spring report) of each year. The Spring report shall constitute the semi-annual report for data collected between the previous 1 January and 30 June. The Fall report shall constitute the semi-annual report for data collected between 1 July and 31 December of the previous calendar year. The Fall report shall also constitute the annual report for the previous calendar year summarizing data collected over the entire calendar year. The annual report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous twelve months, so as to show historical trends at each well. The Discharger shall report to the Board the results of any monitoring done more frequently than specified herein.

The Discharger shall report method detection limits and practical quantitation limits. The report shall include all method peaks, including those which the Discharger cannot quantify and/or specifically identify.

B. REQUIRED MONITORING REPORTS

1. Water Quality Protection Standard Report

The Discharger submitted a water quality protection standard in February 1998. The Discharger shall describe any changes to the water quality protection standard in the annual monitoring report.

2. Detection Monitoring Report

The Discharger shall submit reports of the results of detection monitoring in accordance with the schedules specified in this Monitoring and Reporting Program.

3. Annual Monitoring Summary Report

The Discharger shall submit the Annual Monitoring Summary Report as specified in the Standard Provisions and Reporting Requirements and in this Monitoring and Reporting Program.

4. Constituents-of-Concern Five Year Monitoring Program

The Discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all Constituents of Concern (COCs) every fifth year, beginning with the Fall of 1995, with subsequent COC monitoring efforts being carried out every fifth year thereafter alternately in the Spring and Fall.

Standard Observations

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit (WMU), for the perimeter of the WMU, and for the receiving waters. The Discharger shall conduct standard observations weekly and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

C. MONITORING

If the Discharger, through a detection monitoring program, or the Board finds that there is a measurably significant increase in indicator parameters or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. 98-238) at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Board the results of the resampling and either:

- a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or
- b. an amended Report of Waste Discharge for the establishment of an evaluation monitoring program, per Section 20415 and 20425 of Title 27, which is designed to evaluate changes in water quality due to the release from the landfills.

If the Discharger, through an evaluation monitoring program, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 20430 of Title 27, which is designed to remediate releases from the facility and to achieve compliance with the water quality protection standards.

D. REQUIRED MONITORING PROGRAMS

1. Solid Waste, Leachate, and LCRS Monitoring Program

Designated and Non-hazardous Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to Class III WMUs and Class II WMUs on a monthly basis and submit the results with the corresponding semi-annual report:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Monitoring Frequency</u>
Quantity Discharged to:		
Class II landfill	Yds ³ or tons	Monthly
Class III landfill	Yds ³ or tons	Monthly
Capacity of Landfill Unit Remaining	Percent	Yearly

Liquid and Semi-Liquid Waste Monitoring

The Discharger shall monitor all wastes discharged to the Class II surface impoundment and to the wastewater treatment plant and report to the Board on a semi-annual basis:

<u>Parameter</u>	<u>Report in Units of</u>
Quantity discharged	Gallons/day
Type of Material Discharged	--
Minimum Freeboard	Feet and Tenths

In addition, the Discharger shall collect grab samples of the Class II surface impoundment contents and analyze the samples for the parameters and constituents listed below under "Leachate Monitoring" at the frequencies indicated thereunder.

Leachate Monitoring

The Class III landfill unit does not have a Leachate Collection and Removal System (LCRS). However there is a leachate collection toe drain along the junction of the Class III and Class II landfills and around the northern perimeter of the Class III unit. In addition, the Class II landfill has an LCRS. The Class II surface impoundment has a geonet LCRS and collection sump.

The Discharger shall inspect all landfill unit and surface impoundment LCRS sumps and conveyance systems weekly for leachate generation. If leachate is present in the sumps and conveyance systems, the Discharger shall immediately sample the leachate and continue to sample at the frequencies listed in Table 1. The Discharger shall measure the quantity of leachate pumped from the Class II surface impoundment LCRS and report the quantity as Leachate Volume (in gallons/day). The Discharger shall report the data in the semi-annual monitoring reports.

TABLE 1 - LEACHATE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
Flow Rate	gallons/day	Monthly
pH	Number	Monthly
Specific Conductance	µmhos/cm	Monthly
Monitoring Parameters		
Bicarbonate Alkalinity	mg/l	Quarterly
Carbonate	mg/l	Quarterly
Chloride	mg/l	Quarterly
Nitrate Nitrogen	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Total Dissolved Solids (TDS)	mg/l	Quarterly
Volatile Organic Compounds (EPA Method 8260, Attachment C)	µg/l	Quarterly
Constituents of Concern		
Inorganics ¹	mg/l	Annually
Total Organic Carbon	mg/l	Annually
Volatile Organic Compounds (EPA Method 8260, Attachment D)	µg/l	Annually
Semi-volatile Organic Compounds (EPA Method 8270, Attachment D)	µg/l	Annually
Chlorinated Herbicides (EPA Method 8150, Attachment D)	µg/l	Annually
Organophosphorus Compounds (EPA Method 8141, Attachment D)	µg/l	Annually
¹ Inorganics (dissolved): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.		

LCRS Monitoring

The Discharger shall test all LCRSs annually to demonstrate operation in conformance with waste discharge requirements. The Discharger shall report the results of these tests to the Board and shall include comparisons with earlier tests made under comparable conditions. The Discharger shall report the data in the annual monitoring report.

2. Detection Monitoring Program

Once each Spring and Fall, the Discharger shall monitor all Monitoring Points assigned to detection monitoring and all Background Monitoring Points (for each monitored medium) for the Monitoring Parameters listed in this Program.

For any given monitored medium, the Discharger shall collect a sufficient number of samples from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period. The Discharger shall collect the samples in a manner that ensures sample independence to the greatest extent feasible.

Groundwater sampling shall include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for all monitoring points. The Discharger shall measure groundwater elevations prior to purging and sampling the wells to fulfill the groundwater gradient and direction requirements. For each monitored groundwater body, the Discharger shall measure the water level in each well (in feet and hundredths, MSL) and determine groundwater gradient and direction at least semi-annually, including the times of expected highest and lowest water level elevations for the respective groundwater body. The Discharger shall display this information on a water table contour map and/or groundwater flow net for the site and submit the map with the semi-annual monitoring reports.

The Discharger shall measure groundwater elevations for all background and downgradient wells for a given groundwater body within a period of time short enough to avoid temporal groundwater flow variations which could preclude accurate determination of groundwater gradient and direction.

The Discharger shall perform statistical or non-statistical analysis when the monitoring data are available.

3. Groundwater Monitoring

The monitoring network shall consist of background monitoring wells MW-5, MW-6, MW-10, and MW-B, and downgradient monitoring wells MW-7, MW-9, UM-3, MW-A, and MW-11. Attachment B of Order No. 98-238 shows the locations of these wells. Prior to abandonment of monitoring wells due to construction or expansion activities at the site, the Discharger shall install replacement monitoring wells. The Discharger shall collect samples from the wells at the frequency and for the parameters specified in Table 2. The Discharger shall report the data in the semi-annual monitoring reports.

The Discharger shall sample all new monitoring wells on a quarterly basis for the parameters in Table 2 until there is sufficient data for statistical analysis. Thereafter, the Discharger shall sample the new monitoring wells semi-annually.

TABLE 2 - GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
Groundwater Elevation	Ft. & 100ths, MSL	Semi-annually
pH	Number	Semi-annually
Specific Conductance	µmhos/cm	Semi-annually
Temperature	°F	Semi-annually
Turbidity	Turbidity units	Semi-annually
Monitoring Parameters		
Anions/Cations ¹	mg/l	Semi-annually
Chloride	mg/l	Semi-annually
Dissolved Arsenic	mg/l	Semi-annually
Dissolved Iron	mg/l	Semi-annually
Total Dissolved Solids (TDS)	mg/l	Semi-annually
Volatile Organic Compounds (EPA Method 8260, Attachment C)	µg/l	Semi-annually
Constituents of Concern		
Inorganics ²	mg/l	5-year
Total Organic Carbon	mg/l	5-year
Volatile Organic Compounds (EPA Method 8260, Attachment D)	µg/l	5-year
Semi-volatile Organic Compounds (EPA Method 8270, Attachment D)	µg/l	5-year
Chlorinated Herbicides (EPA Method 8150, Attachment D)	µg/l	5-year
Organophosphorus Compounds (EPA Method 8141, Attachment D)	µg/l	5-year
¹ Anions/Cations: Bicarbonate, Carbonate, Nitrate, Sulfate, Calcium, Magnesium, Potassium, and Sodium. ² Inorganics (dissolved): Aluminum, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.		

4. Surface Water Monitoring

The Discharger shall sample Martinez Creek upstream of the waste management facility at upstream monitoring point S-6 and downstream at monitoring point S-7, and at surface water discharge points S-1 and S-2. The Discharger shall collect surface water samples after the first storm of the rainy season which produces significant flow and quarterly thereafter when water is present. The Discharger shall collect samples from all stations and

analyze at the frequency and for the monitoring parameters specified in Table 3. The Discharger shall submit the surface water monitoring reports with the corresponding semi-annual groundwater monitoring reports. The Discharger shall include an evaluation of surface water quality impacts and compliance with the Water Quality Protection Standard.

The Discharger shall continue to monitor storm water discharges in accordance with Water Quality Order No. 97-03-DWQ (Discharges of Storm Water Associated with Industrial Activities).

TABLE 3 - SURFACE WATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
pH	Number	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Temperature	°F	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters		
Anions/Cations ¹	mg/l	Quarterly
Chloride	mg/l	Quarterly
Dissolved Arsenic	mg/l	Quarterly
Dissolved Copper	mg/l	Quarterly
Dissolved Iron	mg/l	Quarterly
Dissolved Zinc	mg/l	Quarterly
Total Dissolved Solids (TDS)	mg/l	Quarterly
Total Suspended Solids	mg/l	Quarterly
Constituents of Concern		
Total Organic Carbon	mg/l	5-year
Inorganics ²	mg/l	5-year
¹ Anions/Cations: Bicarbonate, Carbonate, Nitrate, Sulfate, Calcium, Magnesium, Potassium, and Sodium. ² Inorganics (dissolved): Aluminum, Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Cyanide, Lead, Manganese, Mercury, Nickel, Silver, Thallium, Tin, Selenium, Sulfide, and Vanadium,		

In addition, the Discharger shall sample one seep (designated MS-1) from along the western side of Church Mine Road, downslope of the Class II surface impoundment. The Discharger shall analyze the seep quarterly for TDS, pH, chloride, arsenic, and iron. The Discharger shall report the data in the semi-annual monitoring reports.

5. Unsaturated Zone Monitoring

The unsaturated zone monitoring network shall consist of two vacuum lysimeters beneath the Class II surface impoundment (L2N and L2S). The Discharger shall install additional vacuum lysimeters beneath new landfill expansion areas. The Discharger shall analyze soil-pore liquid samples at the frequency and for the monitoring parameters specified in Table 4.

The Discharger shall submit unsaturated zone monitoring reports with the corresponding semi-annual monitoring report and shall include evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

TABLE 4 - UNSATURATED ZONE MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
pH	Number	Quarterly
Specific Conductance	µmhos/cm	Quarterly
Monitoring Parameters		
Bicarbonate Alkalinity	mg/l	Semi-annually
Carbonate	mg/l	Semi-annually
Chloride	mg/l	Semi-annually
Nitrate Nitrogen	mg/l	Semi-annually
Sulfate	mg/l	Semi-annually
Total Dissolved Solids (TDS)	mg/l	Semi-annually
Volatile Organic Compounds (EPA Method 8260, Attachment C)	µg/l	Semi-annually
Constituents of Concern		
Inorganics ¹	mg/l	5-year
Total Organic Carbon	mg/l	5-year
Volatile Organic Compounds (EPA Method 8260, Attachment D)	µg/l	5-year
Semi-volatile Organic Compounds (EPA Method 8270, Attachment D)	µg/l	5-year
Chlorinated Herbicides (EPA Method 8150, Attachment D)	µg/l	5-year
Organophosphorus Compounds (EPA Method 8141, Attachment D)	µg/l	5-year
¹ Inorganics (dissolved): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Cyanide, Iron, Lead, Mercury, Manganese, Nickel, Selenium, Silver, Sulfide, Thallium, Tin, Vanadium, and Zinc.		

6. Wastewater Treatment Plant Effluent/Spray Irrigation Monitoring

The Wastewater Treatment Plant Effluent/Spray Irrigation Monitoring program shall consist of monitoring the effluent quality from the treatment plant and two pan lysimeters installed in the spray fields (L3N and L3S). The Discharger shall submit Wastewater Treatment Plant Effluent/ Spray Irrigation and lysimeter monitoring reports with the corresponding semi-annual monitoring reports and shall include evaluation of potential impacts of the facility on the unsaturated zone.

During periods of wastewater application to the spray fields, the Discharger shall monitor the wastewater effluent at the frequency and for the monitoring parameters specified in Table 5.

During periods of wastewater application to the spray fields, the Discharger shall monitor the spray field lysimeters weekly for liquids. Upon initial detection of liquids in the lysimeters, the Discharger shall analyze the samples for all of the monitoring parameters in Table 5. Thereafter, the Discharger shall monitor and analyze samples from the lysimeters at the frequency and for the monitoring parameters specified in Table 5.

TABLE 5 - WASTEWATER EFFLUENT AND SPRAY FIELD MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>
Field Parameters		
Quantity Applied	gallons/day	Weekly
pH	Number	Monthly
Specific Conductance	µmhos/cm	Monthly
Monitoring Parameters		
BOD (5-day, 20°C)	mg/l	Monthly
Chloride	mg/l	Monthly
Settleable Matter	mg/l	Monthly
Total Coliform	MPN/100ml	Monthly
Total Dissolved Solids (TDS)	mg/l	Monthly
Constituents of Concern		
Bicarbonate Alkalinity	mg/l	Semi-annually
Carbonate	mg/l	Semi-annually
Nitrate Nitrogen	mg/l	Semi-annually
Sulfate	mg/l	Semi-annually
Sulfide (including H ₂ S)	mg/l	Semi-annually

7. Pendar Tunnel and Groundwater Drains Monitoring

The Discharger shall monitor discharges from the Pendar Tunnel and the three groundwater drains (GWD-1, GWD-2, and GWD-3) shown on Attachment B. For each discharge point the Discharger shall collect water samples within one month after flows begin and quarterly

thereafter when water is present. The Discharger shall analyze the samples for pH (field), specific conductance (field), total dissolved solids, dissolved arsenic, dissolved iron, and sulfate.

The Discharger shall submit the Pendar Tunnel and the groundwater drains monitoring reports with the corresponding semi-annual monitoring report and shall include evaluation of potential impacts of these discharges on Martinez Creek.

E. WATER QUALITY PROTECTION STANDARDS

The Water Quality Protection Standard (Standard) shall consist of the following elements:

1. Constituents of Concern;
2. Concentration Limits;
3. Monitoring Points;
4. Points of Compliance;
5. Compliance Period.

Each of these is described as follows:

1. Constituents of Concern

The 'COC list' (list of Constituents of Concern required under 27 CCR 20395) shall include all constituents listed in Tables 1, 2, 3, 4, and 5 and in Waste Discharge Requirements Order No. 98-238.

2. Concentration Limits

The Discharger shall determine the Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., groundwater, surface water, and the unsaturated zone) at WMUs. The Discharger shall use background wells to establish concentration limits for each constituent of concern. The Discharger shall use the limits as the basis of comparison with data from the Monitoring Points in that monitored medium.

Tables 6 and 7 list the concentration limits for groundwater and surface water. The Discharger shall determine the unsaturated zone concentration limits when sufficient data is available.

3. Monitoring Points

Attachment B shows the approximate locations of the following monitoring points:

Groundwater Monitoring Points

The upgradient groundwater monitoring points shall be MW-5, MW-6, MW-10, and MW-B. The downgradient groundwater monitoring points for detection monitoring shall be MW-7, MW-9, MW-A, UM-3, and MW-11.

Unsaturated Zone Monitoring Points

The unsaturated zone monitoring points shall be the lysimeters located within the Class II WMU, and the spray fields: L2N, L2S, L3N, and L3S.

Seep Monitoring Point

The seep monitoring point shall be MS-1 (along the western side of Church Mine Road, downslope of the Class II surface impoundment).

Surface Water Monitoring Points

The surface water monitoring points for detection monitoring shall be:

- S-1 In the tributary (formerly the unnamed creek) channel downgradient of the Springfield Shaft and Springfield West Adit to sample for any potential seeps developing from the mine seals.
- S-2 Outfall from north sedimentation pond before discharge enters Martinez Creek.
- S-6 Martinez Creek, 600 feet upstream from north sedimentation pond discharge.
- S-7 Martinez Creek, approximately 450 feet downstream from north sedimentation pond discharge. S-7 is the surface water point of compliance.

TABLE 6 - GROUNDWATER CONCENTRATION LIMITS

<u>Parameter</u>	<u>Units</u>	<u>Class II/III WMUs¹</u>	<u>Class II Surface Impoundment¹</u>
Specific Conductance	µmhos/cm	1300	930
pH	Number	-	-
Turbidity	NTU	15	3.7
Total Dissolved Solids	mg/l	640	520
Chloride	mg/l	16	5.0
Arsenic	mg/l	0.028	0.006
Iron	mg/l	0.99	0.20
Calcium	mg/l	-	2.5
Magnesium	mg/l	-	0.5
Potassium	mg/l	-	0.005
Sodium	mg/l	-	0.5
Nitrate	mg/l	0.69	0.41
Sulfate	mg/l	160	220
Carbonate	mg/l	10	10
Bicarbonate	mg/l	330	64
Aluminum	mg/l	-	0.20
Antimony	mg/l	0.10	0.10
Barium	mg/l	0.05	0.02
Beryllium	mg/l	0.02	0.02
Cadmium	mg/l	0.02	0.02
Chromium	mg/l	0.02	0.02
Cobalt	mg/l	0.05	0.05
Copper	mg/l	0.067	0.02
Manganese	mg/l	1.8	0.61
Silver	mg/l	0.02	0.02
Tin	mg/l	0.10	0.10
Vanadium	mg/l	0.05	0.05
Zinc	mg/l	0.051	0.05
Lead	mg/l	0.002	0.002
Mercury	mg/l	0.0005	0.0002
Nickel	mg/l	0.017	0.005
Selenium	mg/l	0.013	0.005
Thallium	mg/l	0.005	0.005
Cyanide	mg/l	0.004	0.004
Sulfide	mg/l	2.0	1.0
Total Organic Carbon	mg/l	5.8	1.9
Volatile Organic Compounds	µg/l	ND	ND
Semi-volatile Organic Compounds	µg/l	ND	ND
Chlorinated Herbicides	µg/l	ND	ND
Organophosphorus Compounds	µg/l	ND	ND

¹ Dissolved concentrations.

- The Discharger shall develop concentration limits for these parameters.

ND Non-detect at the appropriate method detection limit.

TABLE 7 - SURFACE WATER CONCENTRATION LIMITS

<u>Parameter</u>	<u>Units</u>	<u>S-7¹</u>
Specific Conductance	µmhos/cm	410
pH	Number	-
Turbidity	NTU	22
Total Dissolved Solids	mg/l	190
Total Suspended Solids	mg/l	-
Chloride	mg/l	13
Arsenic	mg/l	0.005
Iron	mg/l	0.20
Calcium	mg/l	27
Magnesium	mg/l	14
Potassium	mg/l	-
Sodium	mg/l	11
Nitrate	mg/l	0.79
Sulfate	mg/l	40
Carbonate	mg/l	10
Bicarbonate	mg/l	110
Aluminum	mg/l	0.20
Antimony	mg/l	0.10
Barium	mg/l	0.02
Beryllium	mg/l	0.02
Cadmium	mg/l	0.02
Chromium	mg/l	0.02
Cobalt	mg/l	0.05
Copper	mg/l	0.02
Manganese	mg/l	0.03
Silver	mg/l	0.02
Tin	mg/l	0.10
Vanadium	mg/l	0.05
Zinc	mg/l	0.05
Lead	mg/l	0.002
Mercury	mg/l	0.0002
Nickel	mg/l	0.005
Selenium	mg/l	0.005
Thallium	mg/l	0.005
Cyanide	mg/l	0.004
Sulfide	mg/l	1.0
Total Organic Carbon	mg/l	6.0
Volatile Organic Compounds	µg/l	ND
Semi-volatile Organic Compounds	µg/l	ND
Chlorinated Herbicides	µg/l	ND
Organophosphorus Compounds	µg/l	ND

¹ Dissolved concentrations.

- The Discharger shall develop concentration limits for these parameters.

ND Non-detect at the appropriate method detection limit.

4. **Point of Compliance**

The Point of Compliance for groundwater shall be the vertical surface located at the hydraulically downgradient limit of the waste management units that extends through the uppermost aquifer underlying the units.

5. **Compliance Period**

The Compliance Period is the number of years equal to the active life of the waste management unit plus the closure period. Each time the Discharger exceeds the Water Quality Protection Standard (i.e., a release is discovered), the facility begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the facility has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

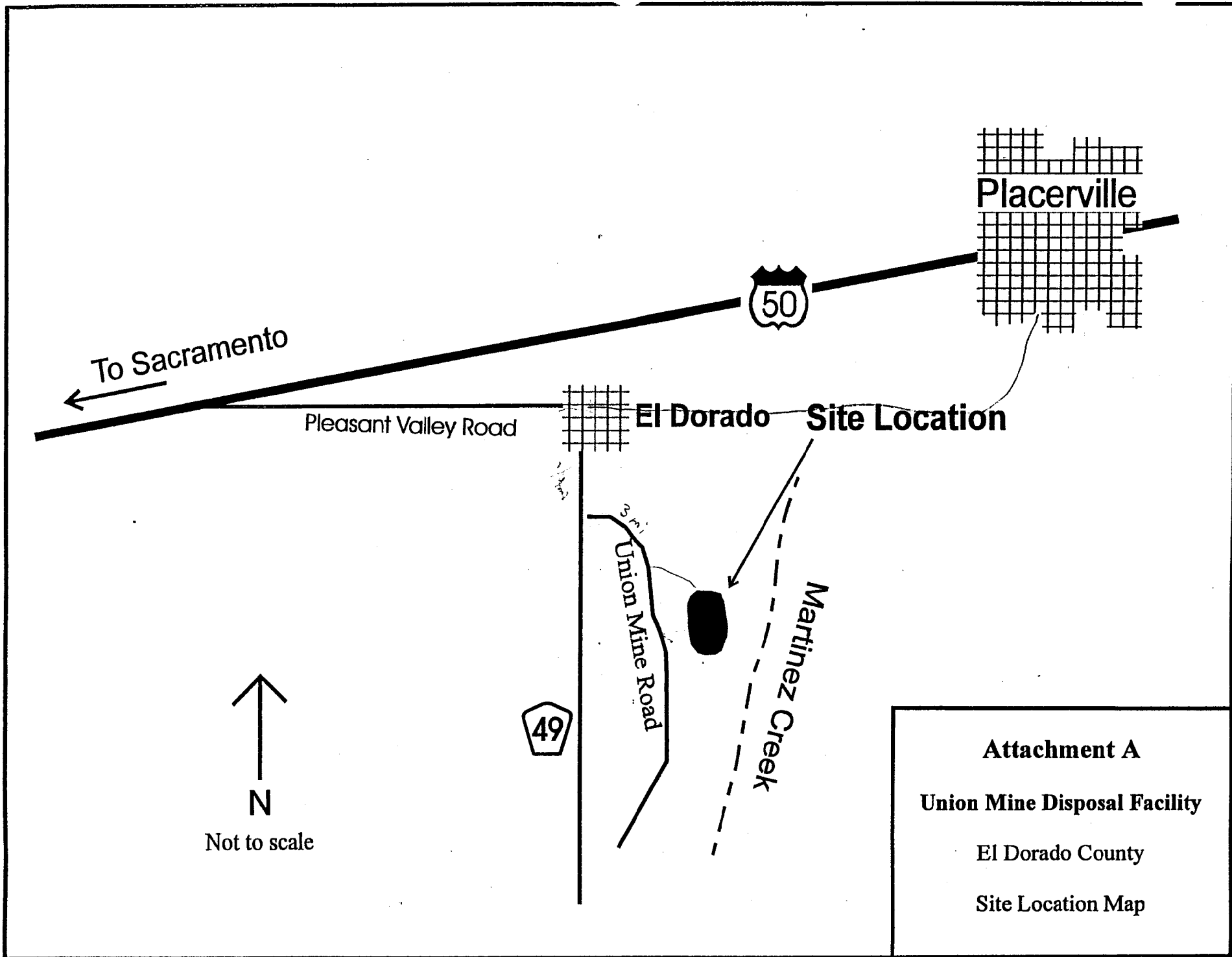
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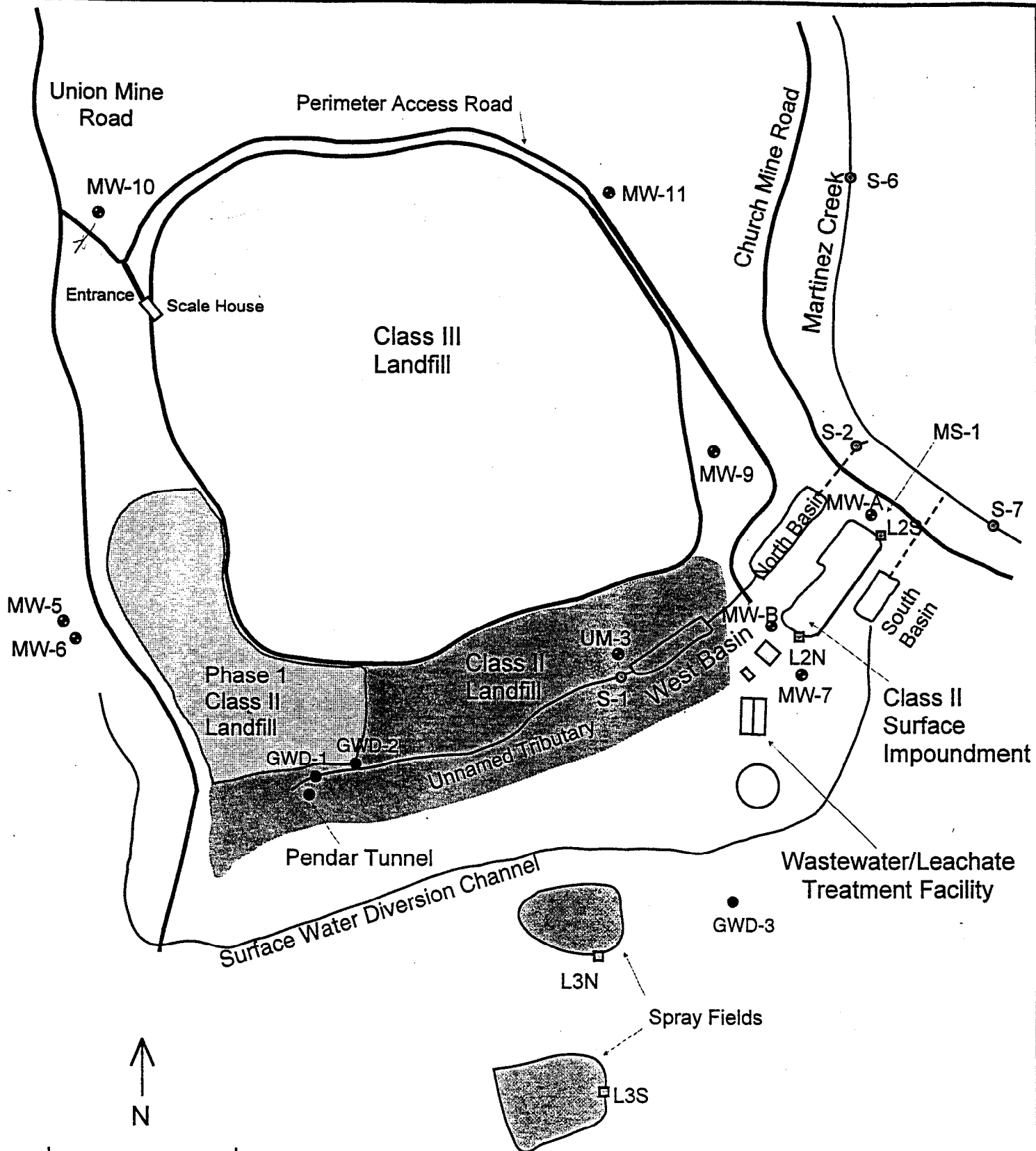

GARY M. CARLTON, Executive Officer

11 December 1998

(Date)

PWM





0 500 ft.

- Monitoring Well
- Lysimeter
- Surface Water Monitoring Point
- Other Monitoring Points

Attachment B

Union Mine Disposal Facility

El Dorado County

Water Quality Monitoring Points

ATTACHMENT C

Constituents included in VOC_{water} (by USEPA Method 8260):

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans-1,4-Dichloro-2-butene
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,1,1-Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

ATTACHMENT D

Inorganics (USEPA Method):

Aluminum	6010	Copper	6010	Silver	6010
Antimony	6010	Cyanide	9010	Sulfide	9030
Arsenic	7061	Iron	6010	Thallium	7841
Barium	6010	Lead	7421	Tin	6010
Beryllium	6010	Manganese	6010	Vanadium	6010
Cadmium	6010	Mercury	7470	Zinc	6010
Chromium	6010	Nickel	7520		
Cobalt	6010	Selenium	7741		

Volatile Organics (USEPA Method 8260):

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bis(2-ethylhexyl) phthalate
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene

ATTACHMENT D

Volatile Organics (continued):

Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Isodrin
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)

ATTACHMENT D

Semivolatile Organics (continued):

Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimethylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methacrylate

ATTACHMENT D

Semivolatile Organics (continued):

Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
Naphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene

ATTACHMENT D

Semivolatile Organics (continued):

Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organophosphorus Compounds (USEPA Method 8141):

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate

Chlorinated Herbicides (USEPA Method 8150):

2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

INFORMATION SHEET

COUNTY OF EL DORADO
UNION MINE DISPOSAL FACILITY
CLASS II LANDFILL, CLASS III LANDFILL,
CLASS II SURFACE IMPOUNDMENT, SEPTAGE/LEACHATE TREATMENT FACILITY
EL DORADO COUNTY

El Dorado County owns and operates the Union Mine Landfill Facility. The facility includes Class II and Class III landfills, a Class II surface impoundment, and a wastewater treatment plant with wastewater spray fields. The County proposes to accept limited quantities of municipal solid waste and designated waste for disposal in the Class II landfill. The septage treatment facility continues to accept septage from local haulers and landfill leachate.

The County is requesting a revision of waste discharge requirements (WDRs) to approve an engineered alternative to the prescriptive requirement for the low permeability layer of the landfill liner and cover systems. The engineered alternative consists of a geosynthetic clay liner (GCL) in place of one-foot of clay barrier soil. In the previous WDRs, the Board approved of the use of GCLs for the Class II composite liner system. These WDRs approve GCL use for both liners and covers of either Class II or III landfill units.

The County has closed portions of the 34.5-acre Class III landfill unit with final cover. Prescriptive final cover is on 5.1 acres and the GCL engineered alternative is on 14.6 acres of the Class II unit. The remainder of the Class III has interim cover.

Surface water drainage is to Martinez Creek. Martinez Creek is tributary to the North Fork Cosumnes River, which is tributary to the Cosumnes River, thence to the Sacramento-San Joaquin Delta.

11 December 1998

PWM